

1885	I.		II.		1885	I.		II.		
	(878°40)		(870°31)			(878°40)		(870°31)		
	h	m	h	m		h	m	h	m	
July 3	9	54	15	27.0	July 20	14	17.9	14	34.2	
4	14	36.3	11	18.6	21	9	58.5	10	25.8	
5	10	16.9	7	10.1	22	5	39.1	6	17.4	
6	5	57.4	12	57.5	23	11	10.0	12	4.8	
7	11	28.3	8	49.0	24	6	50.7	7	56.4	
8	7	8.9	14	36.4	25	12	21.6	13	43.8	
9	12	39.8	10	27.9	26	8	2.2	9	35.4	
10	8	20.4	6	19.5	27	13	33.1	5	27.0	
11	13	51.3	12	6.9	28	9	13.8	11	14.4	
12	9	31.9	7	58.4	29	14	44.7	7	6.0	
13	5	12.5	13	45.8	30	10	25.3	12	53.4	
14	10	43.4	9	37.4	31	6	5.9	8	45.0	
15	6	24.0	5	28.9	Aug. 1	11	36.9	14	32.4	
16	11	54.9	11	16.3	2	7	17.5	10	24.0	
17	7	35.5	7	7.9	3	12	48.5	6	15.6	
18	13	6.4	12	55.3	4	8	29.1	12	3.0	
19		8 47.0		8 46.9						

Ephemerides of the Satellites of Saturn, 1885-86. By A. Marth.

(Continued from page 462.)

Differences of Right Ascension and Declination between the three outer Satellites and the Centre of Saturn.

o ^h Gr. 1885	Titan.		Hyperion.		Iapetus.	
	$\alpha_e - A$ s	$\delta_e - D$ "	$\alpha_e - A$ s	$\delta_e - D$ "	$\alpha_e - A$ s	$\delta_e - D$ "
Dec. 1	- 4.79	- 92.3	+ 6.65	+ 102.8	+ 24.83	- 49.4
2	+ 0.83	- 89.8	+ 1.05	+ 100.1	+ 27.61	- 37.0
3	+ 6.34	- 74.5	- 4.67	+ 86.3	30.22	- 24.3
4	+ 10.95	- 48.5	- 9.83	+ 62.1	+ 32.65	- 11.4
5	+ 13.96	- 15.3	- 13.76	+ 30.2	34.88	+ 1.1
6	+ 14.87	+ 20.2	- 15.96	- 5.7	+ 36.91	+ 14.6
7	+ 13.47	+ 52.6	- 16.22	- 41.1	38.72	27.6
8	+ 9.90	+ 76.6	- 14.63	- 71.9	+ 40.30	+ 40.6
9	+ 4.70	+ 88.0	- 11.51	- 95.5	41.65	53.4
10	- 1.30	+ 84.7	- 7.36	- 110.3	+ 42.74	+ 65.8
11	- 7.09	+ 67.1	- 2.56	- 115.9	43.57	77.9
12	- 11.71	+ 38.3	+ 2.45	- 112.8	+ 44.14	+ 89.7
					R R	

	<i>Titan.</i>		<i>Hyperion.</i>		<i>Iapetus.</i>	
^{ob Gr.} 1885.	$\alpha_s - A$ _S	$\delta_s - D$	$\alpha_s - A$ _S	$\alpha_s - D$ _"	$\alpha_s - A$ _S	$\delta_s - D$ _"
Dec. 13	-14°44'	+ 3°2'	+ 7°30'	- 10°1'7	+ 44°45'	+ 100°9'
14	-14°89'	- 32°5'	+ 11°67'	- 83°9'	+ 44°50'	- 9°6'
15	-13°07'	- 63°3'	+ 15°30'	- 60°7'	44°27'	121°6'
16	- 9°31'	- 84°9'	+ 17°98'	- 33°7'	+ 43°77'	+ 131°0'
17	- 4°20'	- 94°3'	+ 19°52'	- 4°5'	43°01'	139°6'
18	+ 1°51'	- 90°2'	+ 19°80'	+ 25°1'	+ 41°99'	+ 147°3'
19	+ 7°01'	- 73°4'	+ 18°72'	+ 52°9'	40°71'	154°2'
20	+ 11°50'	- 46°0'	+ 16°28'	+ 76°9'	+ 39°18'	+ 160°2'
21	+ 14°31'	- 11°8'	+ 12°54'	+ 94°8'	37°41'	165°2'
22	+ 14°96'	+ 24°2'	+ 7°69'	+ 104°3'	+ 35°41'	+ 169°2'
23	+ 13°27'	+ 56°3'	+ 2°10'	+ 103°6'	33°19'	172°2'
24	+ 9°45'	+ 79°5'	- 3°71'	+ 91°6'	+ 30°75'	+ 174°2'
25	+ 4°07'	+ 89°5'	- 9°07'	+ 68°9'	28°12'	175°0'
26	- 2°00'	+ 84°5'	- 13°30'	+ 37°5'	+ 25°32'	+ 174°7'
27	- 7°73'	+ 65°3'	- 15°84'	+ 1°3'	22°36'	173°3'
28	- 12°18'	+ 35°2'	- 16°42'	- 35°1'	+ 19°26'	+ 170°8'
29	- 14°65'	- 0°6'	- 15°11'	- 67°5'	16°03'	167°2'
30	- 14°82'	- 36°4'	- 12°21'	- 92°9'	+ 12°70'	+ 162°5'
31	- 12°73'	- 66°7'	- 8°14'	- 109°6'	9°29'	156°7'
1886.						
Jan. 1	- 8°77'	- 87°2'	- 3°38'	- 117°0'	+ 5°82'	+ 149°9'
2	- 3°53'	- 95°2'	+ 1°66'	- 115°3'	+ 2°31'	142°1'
3	+ 2°20'	- 89°6'	+ 6°57'	- 105°4'	- 1°21'	+ 133°3'
4	+ 7°62'	- 71°3'	+ 11°05'	- 88°5'	4°72'	123°6'
5	+ 11°94'	- 42°8'	+ 14°81'	- 65°9'	- 8°20'	+ 113°1'
6	+ 14°50'	- 8°0'	+ 17°65'	- 39°1'	11°11'	101°8'
7	+ 14°86'	+ 27°9'	+ 19°37'	- 9°9'	- 14°94'	+ 89°7'
8	+ 12°91'	+ 59°5'	+ 19°84'	+ 19°9'	18°16'	77°0'
9	+ 8°88'	+ 81°4'	+ 18°99'	+ 48°4'	- 21°26'	+ 63°8'
10	+ 3°39'	+ 89°9'	+ 16°75'	+ 73°3'	24°21'	50°1'
11	- 2°66'	+ 83°3'	+ 13°22'	+ 92°5'	- 26°98'	+ 36°1'
12	- 8°26'	+ 62°7'	+ 8°56'	+ 103°7'	29°56'	21°8'
13	- 12°49'	+ 31°7'	+ 3°10'	+ 104°9'	- 31°92'	+ 7°3'
14	- 14°69'	- 4°4'	- 2°68'	+ 95°0'	34°06'	- 7°3'
15	- 14°58'	- 39°8'	- 8°12'	+ 74°2'	- 35°95'	- 21°8'
16	- 12°26'	- 69°2'	- 12°55'	+ 44°1'	37°59'	36°2'
17	- 8°14'	- 88°5'	- 15°38'	+ 8°6'	- 38°96'	- 50°3'
18	- 2°85'	- 94°9'	- 16°29'	- 28°1'	40°05'	64°1'
19	+ 2°83'	- 88°0'	- 15°30'	- 61°5'	- 40°85'	- 77°4'

	<i>Titan.</i>		<i>Hyperion.</i>		<i>Iapetus.</i>	
ob Gr. 1886.	$\alpha_s - A$	$\delta_s - D$	$\alpha_s - A$	$\delta_s - D$	$\alpha_s - A$	$\delta_s - D$
Jan. 20	+ 8°10'	- 68°5'	- 12°66'	- 88°3'	- 41°36'	- 90°2'
21	+ 12°20'	- 39°3'	- 8°80'	- 106°5'	- 41°57'	- 102°4'
22	+ 14°50'	- 4°3'	- 4°18'	- 115°6'	41°49'	113°8'
23	+ 14°60'	+ 31°2'	+ 0°77'	- 115°5'	- 41°12'	- 124°4'
24	+ 12°42'	+ 61°7'	+ 5°66'	- 107°2'	40°46'	134°2'
25	+ 8°25'	+ 82°3'	+ 10°16'	- 91°6'	- 39°52'	- 143°0'
26	+ 2°73'	+ 89°2'	+ 14°00'	- 70°1'	38°30'	150°8'
27	- 3°24'	+ 81°2'	+ 16°95'	- 44°2'	- 36°81'	- 157°5'
28	- 8°65'	+ 59°6'	+ 18°83'	- 15°7'	35°07'	163°2'
29	- 12°60'	+ 28°2'	+ 19°51'	+ 13°8'	- 33°10'	- 167°7'
30	- 14°55'	- 7°8'	+ 18°89'	+ 42°3'	30°91'	171°0'
31	- 14°20'	- 42°4'	+ 16°95'	+ 67°7'	- 28°51'	- 173°2'
Feb. 1	- 11°71'	- 70°7'	+ 13°72'	+ 87°9'	25°92'	174°2'
2	- 7°51'	- 88°5'	+ 9°34'	+ 100°7'	- 23°16'	- 174°0'
3	- 2°23'	- 93°6'	+ 4°12'	+ 104°0'	20°26'	172°7'
4	+ 3°34'	- 85°5'	- 1°51'	+ 96°5'	- 17°24'	- 170°2'
5	+ 8°43'	- 65°3'	- 6°93'	+ 78°1'	14°11'	166°6'
6	+ 12°29'	- 35°8'	- 11°50'	+ 50°3'	- 10°89'	- 161°9'
7	+ 14°33'	- 1°1'	- 14°60'	+ 16°2'	7°62'	156°1'
8	+ 14°21'	+ 33°6'	- 15°86'	- 19°9'	- 4°31'	- 149°4'
9	+ 11°88'	+ 62°9'	- 15°21'	- 53°6'	- 0°98'	141°7'
10	+ 7°64'	+ 82°1'	- 12°98'	- 81°4'	+ 2°35'	- 133°2'
11	+ 2°16'	+ 87°6'	- 9°43'	- 101°2'	5°65'	123°8'
12	- 3°67'	+ 78°5'	- 5°05'	- 112°0'	+ 8°90'	- 113°6'
13	- 8°86'	+ 56°3'	- 0°27'	- 113°8'	12°08'	102°8'
14	- 12°58'	+ 24°9'	+ 4°51'	- 107°3'	+ 15°18'	- 91°4'
15	- 14°27'	- 10°4'	+ 8°97'	- 93°5'	18°18'	79°4'
16	- 13°74'	- 44°1'	+ 12°84'	- 73°8'	+ 21°05'	- 67°0'
17	- 11°15'	- 71°0'	+ 15°90'	- 49°4'	23°78'	54°2'
18	- 6°93'	- 87°6'	+ 17°96'	- 22°1'	+ 26°36'	- 41°1'
19	- 1°73'	- 91°6'	+ 18°88'	+ 6°5'	28°78'	27°8'
20	+ 3°69'	- 82°6'	+ 18°56'	+ 34°6'	+ 31°02'	- 14°4'
21	+ 8°57'	- 62°0'	+ 16°96'	+ 60°2'	33°06'	- 1°0'
22	+ 12°21'	- 32°7'	+ 14°11'	+ 81°2'	+ 34°90'	+ 12°5'
23	+ 14°05'	+ 1°4'	+ 10°11'	+ 95°5'	36°53'	25°9'
24	+ 13°76'	+ 35°0'	+ 5°22'	+ 101°1'	+ 37°95'	+ 39°0'
25	+ 11°32'	+ 63°1'	- 0°17'	+ 96°4'	39°14'	51°8'
26	+ 7°10'	+ 80°9'	- 5°51'	+ 81°0'	+ 40°09'	+ 64°3'

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	<i>Titan.</i>		<i>Hyperion.</i>		<i>Iapetus.</i>	
α_s Gr. 1886	$\alpha_s - A$	$\delta_s - D$	$\alpha_s - A$	$\delta_s - D$	$\alpha_s - A$	$\delta_s - D$
Feb. 27	+ 171	+ 85.4	- 10.17	+ 56.1	+ 40.81	+ 76.4
28	- 3.94	+ 75.6	- 13.54	+ 24.1	+ 41.29	+ 88.0
Mar. 1	- 8.92	+ 53.2	- 15.20	- 10.7	41.53	99.1
2	- 12.42	+ 22.2	- 15.05	- 44.2	+ 41.52	+ 109.5
3	- 13.92	- 12.3	- 13.22	- 72.7	41.28	119.3
4	- 13.27	- 44.8	- 10.08	- 93.9	+ 40.80	+ 128.3
5	- 10.63	- 70.5	- 6.03	- 106.5	40.09	136.5
6	- 6.45	- 85.9	- 1.51	- 110.5	+ 39.16	+ 144.0
7	- 1.37	- 89.0	+ 3.11	- 106.3	38.08	150.6
8	+ 3.88	- 79.6	+ 7.51	- 95.0	+ 36.62	+ 156.3
9	+ 8.56	- 59.0	+ 11.40	- 77.3	35.03	161.0
10	+ 12.01	- 30.1	+ 14.57	- 54.9	+ 33.25	+ 164.8
11	+ 13.69	+ 3.1	+ 16.82	- 29.2	31.28	167.6
12	+ 13.30	+ 35.6	+ 18.02	- 1.8	+ 29.14	+ 169.4
13	+ 10.85	+ 62.5	+ 18.06	+ 25.6	26.84	170.2
14	+ 6.66	+ 79.2	+ 16.87	+ 51.1	+ 24.38	+ 170.0
15	+ 1.40	+ 82.9	+ 14.46	+ 72.8	21.79	168.7
16	- 4.07	+ 72.7	+ 10.91	+ 88.6	+ 19.07	+ 166.5
17	- 8.85	+ 50.5	+ 6.41	+ 96.5	16.26	163.2
18	- 12.17	+ 20.2	+ 1.32	+ 94.9	+ 13.36	+ 159.0
19	- 13.54	- 13.3	- 3.90	+ 83.0	10.39	153.9
20	- 12.82	- 44.7	- 8.63	+ 61.4	+ 7.36	+ 147.8
21	- 10.19	- 69.2	- 12.27	+ 32.3	4.31	140.8
22	- 6.10	- 83.7	- 14.36	- 0.8	+ 1.24	+ 133.0
23	- 1.16	- 86.3	- 14.72	- 33.6	- 1.84	124.4
24	+ 3.93	- 76.7	- 13.43	- 62.7	- 4.88	+ 115.1
25	+ 8.45	- 56.4	- 10.76	- 85.2	7.87	105.1
26	+ 11.74	- 28.2	- 7.12	- 99.9	- 10.81	+ 94.4
27	+ 13.31	+ 4.0	- 2.91	- 106.5	13.67	83.2
28	+ 12.87	+ 35.5	+ 1.52	- 104.6	- 16.43	+ 71.6
29	+ 10.44	+ 61.3	+ 5.83	- 95.8	19.07	59.6
30	+ 6.34	+ 77.2	+ 9.75	- 80.8	- 21.57	+ 47.2
31	+ 1.22	+ 80.3	+ 13.03	- 60.6	23.93	34.5
April 1	- 4.08	+ 70.1	+ 15.50	- 36.9	- 26.12	+ 21.7
2	- 8.69	+ 48.3	+ 17.01	- 11.0	28.14	+ 8.8
3	- 11.87	+ 18.7	+ 17.44	+ 15.5	- 29.96	- 4.0
4	- 13.15	- 13.7	+ 16.70	+ 40.8	31.57	16.7
5	- 12.43	- 44.0	+ 14.77	+ 63.3	- 32.97	- 29.3

o ^h Gr. 1886.	<i>Titan.</i>		<i>Hyperion.</i>		<i>Iapetus.</i>	
	$\alpha_s - A$ S	$\delta_s - D$ "	$\alpha_s - A$ S	$\delta_s - D$ "	$\alpha_s - A$ S	$\delta_s - D$ "
Apr. 6	- 9.85	- 67.6	+ 11.72	+ 80.5	- 34.15	- 41.6
7	- 5.87	- 81.4	+ 7.66	+ 90.8	- 35.10	- 53.6
8	- 1.07	- 83.6	+ 2.98	+ 92.4	35.81	65.1
9	+ 3.87	- 74.2	- 2.07	+ 84.2	- 36.28	- 76.2
10	+ 8.25	- 54.4	- 6.86	+ 65.3	36.51	86.7
11	+ 11.43	- 26.9	- 10.78	+ 40.4	- 36.49	- 96.5
12	+ 12.94	+ 4.4	- 13.35	+ 9.5	36.24	105.7
13	+ 12.50	+ 34.9	- 14.29	- 22.5	- 35.75	- 114.1
14	+ 10.12	+ 59.8	- 13.58	- 51.8	35.02	121.7
15	+ 6.13	+ 75.0	- 11.46	- 75.6	- 34.07	- 128.5
16	+ 1.15	+ 77.9	- 8.27	- 92.3	32.90	134.4
17	- 4.00	+ 67.8	- 4.39	- 101.2	- 31.52	- 139.3
18	- 8.48	+ 46.6	- 0.19	- 102.4	29.94	143.4
19	- 11.56	+ 17.9	+ 4.01	- 96.3	- 28.18	- 146.5
20	- 12.82	- 13.6	+ 7.94	- 84.0	26.24	148.6
21	- 12.11	- 42.9	+ 11.35	- 66.4	- 24.14	- 149.8
22	- 9.62	- 65.7	+ 14.06	- 44.8	21.90	150.1
23	- 5.75	- 79.1	+ 15.90	- 20.6	- 19.53	- 149.4
24	- 1.08	- 81.2			17.04	147.7
25	+ 3.73	- 72.0			- 14.46	- 145.2
26	+ 7.99	- 52.8			11.80	141.8
27	+ 11.11	- 26.1			- 9.07	- 137.5
28	+ 12.60	+ 4.3			6.30	132.5
29	+ 12.19	+ 33.9			- 3.50	- 126.7
30	+ 9.89	+ 58.1			- 0.69	120.2
May 1	+ 6.02	+ 72.9			+ 2.12	- 112.9
2	+ 1.17	+ 75.5			4.91	105.0
3	- 3.85	+ 65.9			+ 7.66	- 96.7

Note on Stationary Radiant Points. By Richard A. Proctor.

It is hardly necessary for me to point out that the results indicated by Mr. Denning, in the June number of the *Notices*, with regard to meteoric velocities, and his supposed recognition of stationary radiants, are not congruous. A radiant really stationary for three or four months, or varying only by a degree or so in that time, implies *of necessity* a velocity of meteoric motion many times greater than the velocity of the earth in her orbit.